WHAT IS CLAIMED IS:

1.   A method for cleaning a batch of granular materials to be used in extruding a product, the batch including pellets, defective pellets, and loose particles, comprising:

removing a portion of the loose particles from the batch, including removing loose contaminants separable from both the pellets and the defective pellets, the contaminants having material characteristics that are undesirable for the product;

after the removing of a portion of the loose particles, detecting in the batch the defective pellets and additional loose contaminants, the defective pellets being inextricably attached to embedded contaminants; and

removing the defective pellets and the additional loose contaminants from the batch.

2.   The method of claim 1, further comprising removing further contaminants containing ferrous material from the batch.

3.   The method of claim 2, wherein the removing of further contaminants containing ferrous material occurs before the removing of the defective pellets from the batch.

4.   The method of claim 2, wherein the removing of further contaminants containing ferrous material occurs after the removing of the defective pellets from the batch.

5.   The method of claim 2, wherein the removing of further contaminants containing ferrous material comprises using at least one magnet.

6.   The method of claim 5, wherein the at least one magnet comprises a rare earth material.

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7.   The method of claim 6, wherein the rare earth material comprises at least neodymium-iron-boron.

8.   The method of claim 1, wherein the removing of a portion of the loose particles from the batch includes removing clean fines.

9.   The method of claim 1, wherein the removing of a portion of the loose particles from the batch comprises:

    disrupting electrostatic bonds between the loose particles and the pellets and defective pellets;

    air-washing the batch to lift the loose particles; and

    providing a circulating air flow to the batch to remove the loose particles.

10.   The method of claim 1, wherein the removing of a portion of the loose particles comprises applying a vacuum, the vacuum having sufficient strength to remove the loose particles but having insufficient strength to remove a significant quantity of the pellets.

11.   The method of claim 1, wherein the detecting of the defective pellets and additional loose contaminants comprises optically scanning the batch for evidence of the embedded contaminants.

12.   The method of claim 1, wherein the detecting of the defective pellets and additional loose contaminants comprises mechanical sorting.

13.   The method of claim 12, the detecting of the defective pellets and additional loose contaminants further comprises sorting the batch of pellets by at least one of weight and geometry.

14.   The method of claim 1, wherein the pellets are used to extrude at least one of polyethylene, crosslinked polyethylene, tree-retardant

crosslinked polyethylene, linear low-density polyethylene, propylene/ethylene thermoplastic copolymers, ethylene/vinyl acetate (EVA) copolymers, ethylene/methyl acrylate (EMA) copolymers, ethylene/ethyl acrylate (EEA) copolymers, ethylene/butyl acrylate (EBA) copolymers, ethylene/α-olefin copolymers, and polypropylene.

15.   The method of claim 1, wherein the pellets are extruded into the insulation layer of an electrical cable.

16.   An apparatus for removing contaminants from a collection of pellets intended for extruding a product, comprising:

        a deduster having an input for receiving the collection and an output, the deduster being configured to remove unwanted particles from the collection and to discharge the collection at the output, the unwanted particles including clean fines and loose contaminants, the contaminants having material characteristics detrimental to the product; and

        a pellet sorter coupled to the output of the deduster, the pellet sorter being configured to identify and remove at least additional loose contaminants and pellets containing contaminants embedded within them.

17.   The apparatus of claim 16, further comprising a passage between the deduster and the pellet sorter, said passage including a cover to substantially prevent ambient particulates from mixing with the collection.

18.   The apparatus of claim 16, further comprising a magnet positioned to impart magnetic force on the collection.

19.   The apparatus of claim 18, wherein the magnet is located downstream from the pellet sorter.

20.   The apparatus of claim 18, wherein the magnet is located upstream from the pellet sorter.

21. The apparatus of claim 18, wherein the magnet comprises a rare earth material.

22. The apparatus of claim 21, wherein the rare earth material comprises at least neodymium-iron-boron.

23. The apparatus of claim 16, wherein the deduster includes a vacuum, the vacuum having sufficient strength to remove contaminants but having insufficient strength to remove a significant quantity of the pellets from the batch.

24. The apparatus of claim 23, wherein the pellet sorter includes an optical scanner.

25. An apparatus for cleaning a batch of materials intended for extruding a product, the materials including a plurality of resin pellets, clean fines and contaminants, contaminants having material characteristics undesirable for the product, comprising:

a contaminant remover positioned in a stream of the materials, the remover being configured to separate from the batch clean fines, contaminants unattached to the pellets, and contaminants electrostatically adhered to at least one of the pellets; and

a pellet sorter positioned downstream of the contaminant remover, the sorter being configured to select and remove at least additional contaminants unattached to the pellets and contaminants adhered to at least one of the pellets.

26. The apparatus of claim 25, further comprising a magnet positioned in the stream.